



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Arnold, et al.

Art Unit : 2672

Serial No. : 10/816,587

Examiner : Unknown

Filed : March 31, 2004

Title : ADJUSTED STROKE RENDERING

## MAIL STOP AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Applicant submits the references listed on the attached form PTO-1449. As this application was filed subsequent to June 30, 2003, only non-US references are included.

The applicant is aware that the two approaches to rendering a "synthetic bold" font described below were known and/or in public use prior to the filing date of the present patent application.

The first approach manipulates a bitmap of a glyph. In the simplest case, the glyph is rendered two or more times with a translation of the origin. For example, draw a text string, then move the origin right by one pixel and draw it again. One PostScript driver used an algorithm where synthetic bold text is rendered four times, using one pixel offsets in each of x and y directions. This technique is sometimes called "smear bold", because it is as if each pixel is smeared in the offset direction. The magnitude of the offset(s) determines the amount of emboldening, which can scale with the size of the font. The offset amounts in x and y do not need to be equal. Some algorithms smear only in the x direction, while others smear in both x and y, but by different amounts.

The second approach manipulates an outline of a glyph. Scalable fonts are represented by an outline, which is a collection of graphics paths. Normally, a glyph is rendered to a bitmap by using a "fill" operation on the outline; pixels inside a path are marked while those outside a path are untouched. It is also possible to "stroke" an outline. This may be used for artistic effect or to create an "outline" style of font. If the fill and stroke colors are the same, a combination of fill and stroke results in an emboldened glyph. The amount of emboldening depends on the width of

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I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*November 18, 2004*

Date of Deposit

*Mary Mundy*  
Mary Mundy

the stroke. Stroking is limited to darkening amounts of an integer number of high resolution pixels.

Some PostScript drivers use stroked text for synthetic bold. In the Portable Document Format (PDF) specification, one of the text rendering modes is "Fill, then stroke text." The intention is that the two operations are as closely matched as possible. In some systems, the fill and stroke operations may be performed by different subsystems. For example, the fill can be performed by a type rasterizer to produce a bitmap. The stroke can be performed by a graphics rasterizer and superimposed on the glyph bitmap. Even if the same hinted outline is used for both, the match may not be perfect.

This statement is being filed within three months of the filing date of the application or before the receipt of a first Office action on the merits. Please apply any charges or credits to Deposit Account No. 06-1050.

Brenda Leeds Binder has been given limited recognition under 37 CFR §10.9(b) as an employee of the Fish & Richardson PC law firm to prepare and prosecute patent applications wherein the patent applicant is a client of Fish & Richardson PC and the attorney or agent of record in the applications is a registered practitioner who is a member of Fish & Richardson, which is the case in the present application. A copy of the Limited Recognition document, which expires December 1, 2004, is attached hereto.

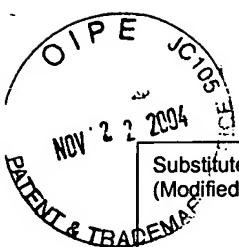
Respectfully submitted,

Date: Nov 17, 2004



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|--|--|---------------------------------------|-------------------------------|
| Substitute Form PTO-1449<br>(Modified)   | U.S. Department of Commerce<br>Patent and Trademark Office | Attorney's Docket No.<br>07844-637001 | Application No.<br>10/816,587 |
| <b>Information Disclosure Statement<br/>by Applicant</b><br>(Use several sheets if necessary)<br><br>(37 CFR §1.98(b)) |  | Applicant<br>Arnold, et al.           |                               |
|  |  | Filing Date<br>March 31, 2004         | Group Art Unit<br>2672        |

| U.S. Patent Documents |           |                 |                  |                 |       |          |                            |
|-----------------------|-----------|-----------------|------------------|-----------------|-------|----------|----------------------------|
| Examiner Initial      | Desig. ID | Document Number | Publication Date | Patentee        | Class | Subclass | Filing Date If Appropriate |
|                       | AA        | 4331955         | 05/25/82         | Hansen          |       |          |                            |
|                       | AB        | 4486785         | 12/04/84         | Lasher et al.   |       |          |                            |
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|                       | AD        | 4591844         | 05/27/86         | Hickin et al.   |       |          |                            |
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|                       | AAA       | 5910805         | 06/08/99         | Hickey et al.   |       |          |                            |

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| Examiner Signature   | Date Considered |
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|  | Filing Date<br><b>March 31, 2004</b>                       | Group Art Unit<br><b>2672</b>                |                                      |

| U.S. Patent Documents |           |                 |                  |                  |       |          |                            |
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| Examiner Initial      | Desig. ID | Document Number | Publication Date | Patentee         | Class | Subclass | Filing Date If Appropriate |
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|---|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|----|
| Examiner Initial  | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation |    |
|   |           |                 |                  |                          |       |          | Yes         | No |
|   | AKK       | 86/04703        | 08/14/86         | PCT                      |       |          |             |    |
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|---|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|----|
| Examiner Initial  | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation |    |
|   |           |                 |                  |                          |       |          | Yes         | No |
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|   | AZZ       | 0 772 144       | 05/07/97         | EP                       |       |          |             |    |
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| Examiner Initial  | Desig. ID | Document  |
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|   | AFFF      | "The TrueType instruction set", <a href="http://www.microsoft.com/typography/otspec/ttinst.htm">http://www.microsoft.com/typography/otspec/ttinst.htm</a> , 1997, Cover sheet (1 page); pp. 181-261   |
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|   | AJJJ      | Microsoft Corporation, Microsoft ClearType FAQ [online], page last updated September 26, 2002, <a href="http://www.microsoft.com/typography/faq/faq15.htm">http://www.microsoft.com/typography/faq/faq15.htm</a>  |
|   | AKKK      | Microsoft Corporation, ClearType Antialiasing, 2003 [online], <a href="http://msdn.microsoft.com/library/default.asp?url=/library/en-us/gdi/fonttext-osgn.asp">http://msdn.microsoft.com/library/default.asp?url=/library/en-us/gdi/fonttext-osgn.asp</a> |
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